03500.015894.

PATENT APPLICATION

14 Response 5/28/03

5/28/03

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)

TAKAHARU KONDO, et al.)

Application No.: 09/982,845)

Filed: October 22, 2001)

For: SILICON-BASED FILM AND PHOTOVOLTAIC ELEMENT)

Examiner: S. A. Gebremariam

Group Art Unit: 2811

May 9, 2003

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PRELIMINARY RESPONSE

Sir:

This is a response to the Office Action dated January 9, 2003 (Paper. No 10) in above-identified application. A Request For Continued Examination (RCE) is being filed concurrently herewith. Claims 1 to 8 are in the application, with Claim 1 being the sole independent claim. Favorable consideration is respectfully requested.

Claims 1 to 8 were rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 5,492,142 (Sano '142). The rejection is respectfully traversed.

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May 9, 2003
(Date of Deposit)

Damond E. Vadnais, Reg. No. 52,310
Name of Attorney for Applicant

Signature

May 9, 2003
Date of Signature

The invention concerns a silicon-based film comprising a crystal phase which is formed on a substrate. The substrate has a surface shape represented by a function f. The surface shape has a standard deviation of an inclination arctan (df/dx) from 15° to 55° within the range of sampling length dx from 20 nm to 100 nm. A Raman scattering strength resulting from an amorphous component in the silicon-based film is not more than a Raman scattering strength resulting from a crystalline component in the silicon-based film. A difference between a spacing in a direction parallel to a principle surface of the substrate and a spacing of single crystal silicon is within the range of 0.2 % to 1.0 % with regard to the spacing of the single crystal silicon.

Thus, according to one feature of the invention, the surface shape of the substrate is represented by a function f and has a standard deviation of an inclination arctan (df/dx) from 15° to 55° within the range of sampling length dx from 20 nm to 100 nm. By virtue of this feature, a silicon-based film with a high optical confinement effect and with fewer defects is more easily achieved. See, for example, page 11, line 18 to line 25, of the present specification.

The Office Action concedes that Sano '142 fails to explicitly disclose the foregoing feature. Yet, the Office Action maintains that this feature is inherent in Sano '142.

Applicants respectfully disagree.

The Office Action is correct that Sano '142 discloses a substrate having a textured surface which can be described by a function f, and that this textured surface has a standard deviation of an inclination that can be described by a function arctan (df/dx).

However, it does not follow that Sano's textured surface has a standard deviation of an inclination arctan (df/dx) from 15° to 55° within the range of sampling length dx from 20 nm to 100 nm. The surface shape of the present invention is not the inevitable result of the mere fact that a substrate is textured.

As shown in Table 5 of the present specification (page 52), the uneven surface shape in Comparative Example 4-1 has a standard deviation of an inclination arctan (df/dx) of 5°; and the uneven surface shape in Comparative Example 4-2 has a standard deviation of an inclination arctan (df/dx) of 60°. Thus, as demonstrated by these comparative examples, the standard deviation of an inclination arctan (df/dx) of Sano's textured substrate might also have a surface shape falling outside of the claimed range of from 15° to 55°.

In this regard, Applicants note that the fact that a certain result or characteristic may be present in the prior art is insufficient to establish inherency. See MPEP § 2112. To establish inherency, the extrinsic evidence must make clear that the missing descriptive matter is necessarily present in that which is being described in the reference.

Accordingly, if the rejection over Sano '142 is maintained, it is respectfully requested for the Examiner to provide extrinsic evidence which clearly demonstrates that Sano's textured surface necessarily has a standard deviation of an inclination arctan (df/dx) from 15° to 55° within the range of sampling length dx from 20 nm to 100 nm.

In view of the foregoing, Applicants conclude that Sano '142 does not teach or suggest the claimed invention, and it is respectfully requested that the Section 103 rejection be withdrawn.

Turning to a formal matter, an Information Disclosure Statement is being submitted herewith, and consideration of the art cited therein is respectfully requested.

No other matters being raised, it is believed that the entire application is fully in condition for allowance, and such action is courteously solicited.

Applicants' undersigned attorney may be reached in our Costa Mesa, California office at (714) 540-8700. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,

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RCE/2811

In re Application of:

TAKAHARU KONDO, ET AL.

Docket No. 03500.015894.

Application No.: 09/982,845

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For: SILICON-BASED FILM AND PHOTOVOLTAIC ELEMENT

Date: May 9, 2003

COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Transmitted herewith is a response in the above-identified application.

[X] No additional fee is required.

The fee has been calculated as shown below

CLAIMS AS AMENDED						
	(2) CLAIMS REMAINING AFTER AMENDMENT		(4) HIGHEST NO. PREVIOUSLY PAID FOR	(5) PRESENT EXTRA	RATE	ADDITIONAL FEE
TOTAL CLAIMS	20	MINUS	20	= 0	x $9 $18	.00
INDEP. CLAIMS	1	MINUS	3	= 0	x $42 $84	.00
Fee for Multiple Dependent claims $140°/$280						Prev. paid
			TOTAL ADDITIONAL FEE FOR THIS AMENDMENT---			

[ ] °Verified Statement claiming small entity status is enclosed, if not filed previously.

[ ] A check in the amount of $____ is enclosed.

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May 9, 2003
(Date of Deposit)

Damond E. Vadnais, Reg. No. 52,310
Name of Attorney for Applicant

Signature

May 9, 2003
Date of Signature

☐ Charge $___ to Deposit Account No. 06-1205. A duplicate copy of this sheet is enclosed.

☒ Any prior general authorization to charge an issue fee under 37 C.F.R. 1.18 to Deposit Account No. 06-1205 is hereby revoked. The Commissioner is hereby authorized to charge any additional fees under 37 C.F.R. 1.16 and 1.17 which may be required during the entire pendency of this application, or to credit any overpayment, to Deposit Account No. 06-1205. A duplicate copy of this paper is enclosed.

☒ A check in the amount of $ 110.00 to cover the fee for a one month extension is enclosed.

☐ A check in the amount of $___ to cover the Information Disclosure Statement fee is enclosed.

☒ Applicants' undersigned attorney may be reached in our Costa Mesa, California office by telephone at (714) 540-8700. All correspondence should continue to be directed to our address given below.

Respectfully submitted,

Donald Verdini

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